# CMPT 1011: Introduction to Computing

## Lab Assignment 2: Variables, basic operations, and data types

## Value

This coding challenge is worth 3% of your final grade.

## Background

In this coding challenge you will be using variables to calculate and print the correct output.

This assignment relates to the following General Learning Outcomes:

1. Explain fundamental concepts in computing science
2. Examine different data types and manipulating variables

## Instructions

1. Use IntelliJ Idea write your code and make sure it works for couple of examples.

**Problem statement**: Shopping calculator

A shopkeeper sells apples at 3$/unit, bananas at 1.8$/unit and oranges at 2.5$/unit. He usually sells 20 apples, 50 bananas and 35 oranges per day. However, due to extreme snowy conditions, he is offering special discounts:

- Apples: 10% off,
- Bananas: buy 10 get 2 free
- Oranges: buy 10 for 22$.

Now, a customer arrives on a snowy day and requests an additional discount of X% on all fruits. The customer also wants to buy Y oranges and Z bananas.

Your task is to calculate and finish the following tasks:

**A. Revenue from the Customer:**

- Ask the user for the desired discount: "How much discount did the customer ask? <X>"
- Ask for the number of oranges (Y) and bananas (Z) bought. For example: "How many oranges did the customer buy? <Y>" and "How many bananas did the customer buy? <Z>"

- Calculate the total cost for the customer, factoring in all discounts.
- Print: "The shopkeeper sold Y oranges and Z bananas to the customer for a total of '$' dollars." Here '$' is the calculated total selling price.
- **Note**: Total revenue = amount of money a company receives for selling its products, so total revenue = unit price X number of units sold

**B. Usual daily revenue:**

- Calculate and print the shopkeeper's usual daily revenue based on the standard pricing.
- Print: "Usually, the shopkeeper makes '$'." Where '$' should have your calculated total revenue.

**C. Commenting:**

a. You are to use both inline comments and block comments on your code.

**Key suggestions:**

- You are to solve the problem by declaring variables containing each fruit unit price. For example, apples_price = 5, bananas_price = 1.8 etc. You will also have different variable storing each fruits' discounted price, e.g. discounted_apples_price = 0.9*apples_price.
- When asking for user inputs, use descriptive variable names and correct casting to type as needed. For example:

```
user_discount = float(input("How much discount did the customer ask? "))
```

- Use clear variable names when calculating total revenue for the customer and the usual daily revenue. For example, total_revenue_customer, total_usual_revenue etc.
- In print statements, practice concatenating variabldaile values using f-strings, the + or ',' (comma) operator. Example of f-strings:

```
print(f"The shopkeeper sold {oranges_bought} oranges and {bananas_bought} bananas to the customer for a total of ${total_revenue_customer}.")
```

2. Submit your "<FirstName>_<LastName>_Lab2.py" file to the Moodle assignment box.

3. Deadlines will be announced in Moodle. Consider this assignment your opportunity to integrate what you have learned throughout the course.

4. You will be assessed using the rubric provided.

## Assignment Rubric (Total: __/12 marks)

| | 5 | 3 | 2 | 1 | Does Not Meet Expectations 0 |
|---|---|---|---|---|---|
| **Print statements and input function usage** | All the print statements are correctly showing the values and input function used properly | 1 or few print statements missing. 1 or few inputs not taken. | A few messages not displayed, and input function not correctly used. | Both print statements and input function not used correctly. | No evidence |
| **Variables declaration and correct type casting** | | All variable names sensible and correctly casted to types as required | Variable names are not clear | Variable names not clear and type casting not done correctly | No evidence |
| **Correct filename and submission** | | | Filename saved correctly and submitted as a python file | Filename partially correct and submitted as a python file | Both file name and submission is incorrect |
| **Comments and documentation** | | | Comments and documentation added explaining what is happening in code | Comments and documentation missing in portions of the code | No evidence |